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INTELLECTUAL PROPERTY AND TECHNOLOGY
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APPL NO.: **10/718,351** UNIT ART NO: **3749** FILING DATE: **11-21-2003** EXAMINER: **ALFRED BASICHAS**

INVENTION TITLE: **A METHOD AND DEVICE FOR COMBUSTING LIQUID FUELS USING HYDROGEN**

CONFIRM. NO.: **9879**

AMENDMENTS TO THE CLAIMS

What is claimed and desired to be secured by United States Letters Patent is:

1. (currently amended) A method of combusting a liquid primary fuel comprising the steps of:

establishing a first zone of combustion formed by radially inwardly directed intersecting flames comprised essentially of burning hydrogen (H₂) gas supplied from an external source and spaced from a fuel nozzle, and defined by a flame of ignited hydrogen,

establishing a second zone of combustion comprising an atomized primary fuel that is ignited by contact with the first zone of combustion. dispersing a liquid primary fuel through said nozzle into the zone of combustion in a partially vaporized and partially atomized state, and

burning the vaporized liquid primary fuel and the atomized liquid primary fuel entering said zone of combustion.

2. (currently amended) The method of claim 1 wherein the first zone of combustion is established by the steps of:

providing a pressurized source of hydrogen (H₂) through a conduit having a discharge opening adjacent to said first zone of combustion,

igniting the hydrogen exiting discharged through said discharge opening to produce a hydrogen flame; and

mechanically rotating the hydrogen flame about a longitudinal axis of the first zone of combustion.